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FORESTS AND RANGE LANDS IN RELATION TO WATER CONSERVATION

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(Radio talk by Earle H. Clapp, Associate Chief, Forest Service, U. S. Department of Agriculture. National Farm & Home Hour, Sept. 24, 1936)-----

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A national conference on upstream engineering has been held in Washington this week. Its purpose has been a consolidation of information on the control of small streams and tributaries by a combination of land management and engineering works. In authorizing this conference the President said:

"The objects of up-stream engineering are through forestry and land management to keep water out of our streams, to control its action once in the stream and generally to retard the journey of the raindrop to the sea. Thus the crests of down-stream floods are lowered."

One session of the conference was given over to a discussion of the part played by forest and range management in accomplishing this objective. It was agreed that this phase must be integrated and correlated with all other phases such as the management of cultivated lands, engineering practices, and water use if we are to gain workable control over floods and the development of the nation's land and water resources. The importance of good management for forests and ranges is emphasized by the fact that such lands occupy almost two-thirds of our total land area.

We know that regulation of runoff, whether by natural or artificial storage, constitutes one of the fundamental aspects of control and use of water. Also, that the most favorable streamflow is obtained when the earth mantle of the drainage basin has a high capacity to absorb rainfall. Now, our research shows that the capacity of this earth mantle to absorb water varies with the condition of the vegetation upon it, and that excessive runoff from the surface and accelerated erosion ordinarily follow over-use or destruction of the plant cover. We know, then, that the restoration and maintenance of best conditions for these resources - timber and forage - also create conditions favorable for regulation of runoff and the prevention of erosion.

To destroy or even to reduce this cover tremendously increases the runoff and contributes to floods. Factors which tend in this direction are: cultivation of lands not suited to farming but highly important for watershed protection; destruction of vegetative cover by forest fires, and by poor timber cutting and grazing practices. To check these tendencies, the conference was told that the following measures must enter into any effective wide-scale program: First, the extension of protection against forest fires to some 190 million acres on important drainage areas which now lack organized fire protection. Second, we must reforest millions of acres of cut-over and burned-over forest land and submarginal crop land, and introduce more scientific timber cutting and cultural operations on lands which are wholly or partly devastated. Third, we must put under good management some 650 million acres of range lands on which the natural plant-soil-water balance

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has been seriously disturbed. Fourth, engineering practices in the form of silt saving dams, terraces, small reservoirs, the restoration of unwisely drained lakes and swamps and many other forms of mechanical control must be extended as immediate correctives over certain areas of our forest and range. Fifth, cooperation must be worked out between private owners and state and federal governments so that improved management practices will be extended over sufficient areas to become really effective on a national scale. Sixth, public ownership must step in where private owners cannot be depended upon to meet public interests. And seventh, of vital importance to any constructive program of forest and range management, is the need for a large amount of additional research covering all phases of management.

The attainment of any program which will meet future national flood control requirements will also aid in the permanent stabilization of millions of acres of land and the large populations dependent upon the wise use of those lands.

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